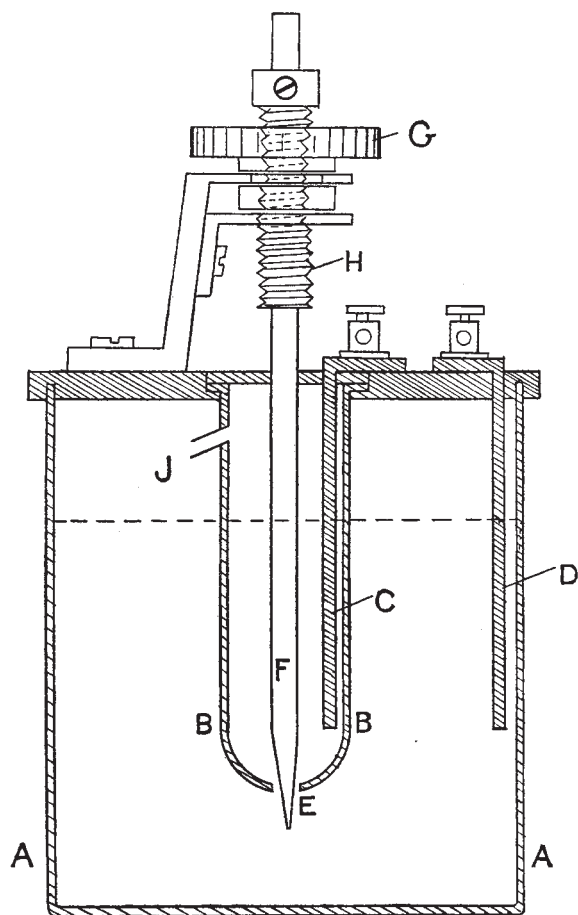


frequency within wide limits. The wider the valve is open the larger is the current, and the lower is the frequency, and *vice versa*. With this apparatus in circuit with a 10-inch coil connected direct on to the 100-volt supply mains, it was found that by adjusting the valve the primary current could be altered from 0 to 25 amperes, while the pitch of the sound of the discharge could be changed from a very shrill whistle down to a rattling roar. By introducing additional self-induction into the circuit the frequency can be lowered still further.

The direction of the current through the apparatus does not affect the results, and the arrangement, when suitably adjusted, works well with alternating current, the sparks in each direction being of equal power. The troublesome fatigue phenomena to which the Wehnelt



instrument is liable appear to be absent, while the difficulties as to the fusing of the platinum wire and the cracking of its insulating sheath are also avoided. This improved instrument has in fact all the advantages of that of Caldwell, of which it is a modification, with the further advantage of easy adjustment to suit different voltages, and to give different amounts of power and different frequencies. A. A. CAMPBELL SWINTON.

#### THE SEVENTH INTERNATIONAL GEOGRAPHICAL CONGRESS.

AT the meeting of the sixth International Geographical Congress in London in 1895, it was decided that the seventh should take place in Berlin in 1899. The Berlin Geographical Society, according to the precedent of previous Congresses, undertook the necessary arrange-

ments, and these have now been perfected. The Congress will differ from that of London by the absence of a geographical exhibition, and by the more thorough organisation of scientific excursions under specialist leaders before and after the meeting.

The proceedings will commence informally by an evening gathering on Wednesday, September 27, when an opportunity will be afforded for conversation amongst the members. Next day the formal opening of the Congress will take place in the splendid new buildings of the Prussian House of Representatives, which has been generously placed at the disposal of the Congress for the whole meeting. As in London, the proceedings of each day will include a forenoon sitting for the discussion of papers of general interest, and several sectional meetings in the afternoon for subjects which appeal to a limited number of specialists.

The Bureau of the Sixth Congress (of which Sir Clements Markham is President and Dr. Scott Keltie and Dr. H. R. Mill Honorary Secretaries) will present a report and resign its functions to that of the new Congress, the President of which is Baron von Richtshofen and the Secretary Hauptmann Kollm. The various committees of the seventh Congress, honorary and executive, bear the names of the most distinguished geographers of all countries, and the gathering promises to be a really representative one.

The papers which have been promised are grouped into seven main divisions, viz. mathematical geography, physical geography, biogeography, anthropogeography, exploration, historical geography, and geographical education. The papers will be very numerous, but as a strict time limit of twenty minutes is to be enforced, there will be an opportunity for effective discussion.

Some of the most interesting subjects to be dealt with in the first group are the position of mean sea-level, the present state of research on the tides, and seismology, while in physical geography Prof. W. M. Davis and Prof. de Lapparent will deal with questions of geomorphology, and oceanography will be treated in great detail in conjunction with polar research.

Dr. Nansen, Sir John Murray, the Prince of Monaco, Prof. Chun (of the *Valdivia* expedition), Profs. Pettersson, Thoulet, &c., have all promised to take part. The plans of the German Antarctic expedition will be explained by Dr. von Drygalski, the chosen leader; while Sir Clements Markham and Sir John Murray will give an account of the progress of the arrangements of the British Antarctic expedition. It is hoped that a general scheme may be agreed upon for simultaneous and strictly comparable observations, so that by combined action the two expeditions will secure the maximum result for their labours.

The distribution of plants will be dealt with by Profs. Engler, Drude and others, while numerous papers on other branches of physical geography are promised.

Under the head of "Exploration," the names of several Germans are announced, but no British subjects have come forward to claim international importance for their journeys.

One feature of the Congress which promises a practical outcome is the prominence which is given to questions of nomenclature. Prof. Richter (of Graz) will propose a systematic terminology for use in research on glaciers; and the terminology and nomenclature of the forms of the ocean floor will be discussed by Profs. Wagner, Krümmel, Voiehoff, and Dr. H. R. Mill. Proposals for the uniform use of the metric system and the centigrade temperature scale in all geographical work will also be put forward.

The scientific excursions, which for the most part precede the meeting of the Congress, have been well organised. The programme has just been issued, giving particulars as to route, leaders, terms, &c., and also containing a list of the best maps and guide-books, and a

bibliography of the scientific literature bearing on each excursion. Most of the excursions start late enough to allow members who have been present at the British Association meeting at Dover to attend them, and they all terminate at Berlin in time for the feast of welcome. They are as follows :—

(1) Siebengebirge, Rhine, Eifel, Moselle, from September 19 to 25, under the guidance of Prof. Bonn and Drs. Philippson and Kaiser.

(2) Taunus, Rhine, Nahe, Lahn, from September 21 to 26, conducted by Prof. Sievers, of Giessen.

(3) The Vosges, from September 21 to 25, led by Profs. Gerland and Weigand, starting from Strassburg.

(4) Thuringia, from September 23 to 27, conducted by Profs. Walther and Regel.

(5) The Island of Rügen, from September 22 to 27, starting from Greifswald, led by Profs. Credner, Cohen, and Deecke.

(6) East and West Prussia, starting from Königsberg, and led by Profs. Jentzsch and Conwentz, from September 22 to 27.

(7) Glacial excursions in the North German Plain will be made to Rüdersdorf, near Berlin, on October 1, and from Hamburg along the Baltic shores, from October 7 to 11, under the charge of Prof. Wahnschaffe and Drs. Keilhack and Müller.

All communications as to the Congress or the excursions should be addressed to "The Seventh International Geographical Congress, 90 Zimmerstrasse, Berlin, S.W."

#### SCIENCE AT THE WOMEN'S INTERNATIONAL CONGRESS.

THE Science Section of the Women's Congress was held at the Small Hall in the Westminster Town Hall on Thursday, June 29, with Mrs. Ayrton in the chair, in the presence of a large and attentive audience. The proceedings were divided into two classes—the work of women in the physical sciences, and the work for women in the biological sciences. Astronomy was represented by Mile. Klumpke, head of one of the departments at the Paris Observatory; geology by Miss Raisin, of Bedford College; chemistry by Miss Dorothy Marshall, of Girton College; bacteriology by Mrs. Percy Frankland; and botany and zoology by Miss Ethel Sargant. The work already accomplished by women in these various branches of science was dealt with by most of the speakers, as also the openings for women who desire to take up science as a profession. Mrs. Ayrton, in the course of her interesting and able address, pointed out that there was an important outlet for the work of women at the present time in the manufacture of electrical apparatus, the demand for electrical instruments being so great that manufacturers were not able to cope with it, and an opportunity was now offered for women with the necessary education, energy and capital to start a factory for this purpose. The subject of research work was also discussed, and stress was laid upon the fact that, inasmuch as the majority of students who take up science do so either as an avenue to a degree or with the idea of earning a livelihood by teaching later on, their training was as a rule insufficient and quite inadequate to permit them to undertake independent original work; whilst on the other hand the demands upon their time made by teaching was so great as to leave practically no leisure for higher work, even when they were qualified to do it. Until this condition of things is altered, and until more women are attracted towards science for its own sake, and not as a means to an end, the contribution of women in the shape of original work must necessarily be limited. It was highly satisfactory to find that, in the open discussion which followed, an attempt on the part

of two speakers to introduce the question of vivisection from the anti-vivisectionist point of view was not tolerated by the audience, these speakers being refused a hearing. It is not too much to say that the papers contributed were worthy both of their subjects and their authors, and that there was a refreshing absence of the hackneyed comparison of the relative position and intellectual powers of men and women, which has been such a favourite theme with so many speakers at this Congress. The next International Congress of Women will be held five years hence in Berlin.

#### NOTES.

WE notice with much regret the announcement that Sir William H. Flower, K.C.B., F.R.S., late Director of the Natural History Departments of the British Museum, died on Saturday, July 1.

THE Albert Medal of the Society of Arts for the present year has been awarded by the President and Council to Sir William Crookes, F.R.S., "for his extensive and laborious researches in chemistry and in physics, researches which have, in many instances, developed into useful and practical applications in the arts and manufactures." The Swiney Prize, awarded every fifth year for a work on jurisprudence, has been awarded to Dr. Dixon Mann for his book on "Forensic Medicine and Toxicology."

AT the annual meeting of the Société nationale d'Acclimatation de France the Isidore Geoffroy Saint-Hilaire Grand Silver Medal was awarded to Prof. J. Cossar Ewart, of the University of Edinburgh, for his zebra hybrid work, and to Miss Eleanor A. Ormerod for her work in entomology.

PROF. MOISSAN has been elected a foreign member of the German Electro-chemical Society.

THE Premier of Queensland has announced that he intends to ask the Queensland Parliament to grant 1000*l.* in aid of the proposed Antarctic exploration expedition.

A CIVIL List Pension of 60*l.* per annum has been granted to Mrs. Kanthack "in consideration of the eminent services rendered to science by her late husband, Dr. A. A. Kanthack, professor of pathology in Cambridge University."

AT Berlin, on June 27, Prof. Virchow opened the new pathological museum which bears his name and has been built under his superintendence. It has cost about 560,000 marks, and contains a collection of more than 20,000 specimens, collected almost wholly by Prof. Virchow himself, and representing the history of pathology during the past half-century.

WE learn from *Science* that Mr. Secretary Long has appointed a Board of Visitors to examine and report upon the U.S. Naval Observatory, to consist of Mr. Wm. E. Chandler, Mr. Alston G. Dayton, Prof. Geo. C. Comstock, Prof. Geo. E. Hale, and Prof. Edward C. Pickering.

THE prize of 500 guineas, offered by the Sulphate of Ammonia Committee for the best essay on "the utility of sulphate of ammonia in agriculture," has been awarded by the judges—Mr. J. Bowen-Jones, of Shrewsbury, and Dr. J. Augustus Voelcker, of London—to Mr. James Muir, formerly professor at the Royal Agricultural College, Cirencester; subsequently at the Yorkshire College, Leeds; now County Instructor in Agriculture to the Somerset County Council. Seventy-three essays were sent in.

WE learn from the *Lancet* that the Senatus Academicus of the Clark University, Worcester, Massachusetts, which is about to commemorate the anniversary of its foundation, has invited